

## CLAIMS

1. A method for preparing a non-pathogenic amoeba vesicle containing a molecule of interest, which method comprises the steps consisting of:
- 5 of:
- a) culturing a non-pathogenic amoeba cell in a culture medium comprising said molecule of interest, under conditions sufficient to allow the non-pathogenic amoeba cell to release vesicles;
- b) recovering a vesicle released by said cell, which vesicle
- 10 contains said molecule of interest;
- with the proviso that said vesicle is not a *Dictyostelium discoideum* vesicle containing Hoechst 33342.
2. The method according to claim 1, wherein said non-pathogenic amoeba is *Dictyostelium discoideum*.
- 15 3. An isolated non-pathogenic amoeba vesicle that contains a molecule of interest, with the proviso that said vesicle is not a *Dictyostelium discoideum* vesicle containing Hoechst 33342.
4. The vesicle according to claim 3, wherein said non-pathogenic amoeba is *Dictyostelium discoideum*.
- 20 5. Use of a non-pathogenic amoeba vesicle that contains a molecule of interest as a vehicle useful for *in vitro* and/or *ex vivo* transferring a molecule of interest to an eukaryotic cell.
6. Use of a non-pathogenic amoeba vesicle that contains a molecule of interest as a vehicle useful for *in vivo* transferring a molecule of
- 25 interest to an eukaryotic cell.
7. A method for *in vitro* and/or *ex vivo* transferring a molecule of interest to an eukaryotic cell, which method comprises the step consisting of contacting an eukaryotic cell with a non-pathogenic amoeba vesicle that contains a molecule of interest, under conditions sufficient to allow the vesicle
- 30 to fuse with the eukaryotic cell, whereby the molecule of interest is transferred to the eukaryotic cell.
8. A method for *in vivo* transferring a molecule of interest to an eukaryotic cell, which method comprises the step consisting of contacting an

eukaryotic cell with non-pathogenic amoeba vesicle that contains a molecule of interest, under conditions sufficient to allow the vesicle to fuse with the eukaryotic cell, whereby the molecule of interest is transferred to the eukaryotic cell.

5                    9. The method according to claim 7 or 8, wherein the non-pathogenic amoeba is *Dictyostelium discoideum*.

                  10. A pharmaceutical composition comprising a non-pathogenic amoeba vesicle containing a therapeutic molecule together with a pharmaceutically acceptable carrier.